The Connection

A WELL DRILLING INDUSTRY NEWSLETTER

MISSOURI
DEPARTMENT OF NATURAL RESOURCES

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NEWTON AND JASPER COUNTY CONTRACTORS MEETING

A meeting was held July 16, 2003 with seven contractors and officials from the Newton and Jasper County Health Departments to seek a means to improve chemical data submission for new wells constructed in Special Area 2.

New rules were formally adopted in December of 2001 requiring among other things, all new wells constructed in the two counties be sampled and analyzed for certain chemical contaminants due to widespread heavy metal and solvent contamination in the area. A well cannot be used until it meets regulatory limits.

Concerns were expressed about making additional site visits to resample wells, and about the cost of lab fees and who should be responsible for payment. A resolution was not proposed. The regulations require all new water wells (excluding monitoring wells and heat pump wells) to be sampled and analyzed for lead and cadmium, regardless of well type or use. If a well indicates impact from lead or cadmium, the well may be resampled, however resampling is not required.

If resampling is not conducted, the well must be plugged and a new well constructed that is cased and grouted into the second aquifer. Since most wells exhibit data below regulatory levels after one or two sampling events, resampling is the most cost-effective means of providing safe groundwater to the landowner. Either the contractor or the well owner have the option of resampling instead of plugging and constructing a second aquifer well.

Problems in obtaining permission to resample a well were also discussed. It was proposed that a drilling contract addendum might be appropriate to allow drillers access for sampling and resampling if the owner installs the pump. If the contractor installs the pump, a similar contract addendum might be appropriate to allow the pump contractor access for resampling. Additionally, a contract addendum might state who is responsible for the sampling and resampling, as well as the additional analytical costs.

In an attempt to better coordinate the submission of analytical testing data, the Wellhead Protection Section committed to providing contractors that work in Special Area 2 with a monthly report listing wells for which data has not been received. It is hoped that by informing contractors of the missing information, more timely submissions of data will result.

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PERFORMING INVESTIGATIONS USING DIRECT PUSH TECHNOLOGY

As an environmental company, do you utilize direct push technology to do site investigations? Do you take samples of soil or water and then immediately plug the holes you've just created? If you've answered yes to either of these scenarios, you have installed "temporary monitoring wells" under the Missouri Well Construction Rules.

According to the Missouri Well Construction Rules, "temporary monitoring wells" are defined as a "well or hole used for field screening purposes such as soil gas monitoring, push-in type holes, auger holes, etc. that are greater than ten feet (10') in depth and are plugged within thirty (30) days of completion. These holes may or may not have pipes installed for various purposes." "Temporary monitoring wells" need not follow the requirements for permanent monitoring well construction, as outlined in rules 10 CSR 23-4.060. However, they must be plugged within 30 days of construction.

If you physically perform the work of creating "temporary monitoring wells", then you are required to possess a non-restricted well permit. If you provide oversight where "temporary monitoring wells" are being constructed, or if you contract for profit directly with the drilling contractor who installs the wells, you are required to possess a restricted monitoring well permit. Please note that if multiple drillers are used on the same site, and each of these drillers works for the same company, only one individual is required to possess a valid non-restricted permit. This person must oversee the work of the others and assume responsibility for their work. If multiple drillers are used on a site and each works for a different company, each driller must possess a non-restricted permit.

"Temporary monitoring wells" are required to be plugged within 30 days of construction. They are required to be reported on an abandonment form within 60 days of being plugged. If multiple temporary wells have been drilled, only one abandonment form is required per site, as long as the wells have all been plugged the same way.

"Temporary monitoring wells" greater than ten feet in depth must be plugged by removing any temporary pipe and filling the well from total depth to ten feet from the surface with approved grout material.

If you have any questions regarding "temporary monitoring wells", please contact Evan Kifer at (573) 368-2170. If you need information

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Performing Investigations *continued...*

regarding obtaining a permit to drill, contract or oversee the drilling of "temporary monitoring wells," contact the permitting clerk at (573) 368-2115.

THE DEEPEST WELL DRILLED IN MISSOURI

In Township 17 North, Range 8 East, Section 10 of Dunklin County (near Senath, Missouri) the draw works and rotary table of rig number OW762 were set up along with the associated pump, shakers, desander, de-silter, and de-gasser. On November 07, 1987, Noble Drilling under contract to the Amoco Production Company began drilling what was to become the deepest well on record for the state of Missouri. On February 13, 1988 (79 days and 24 drill bits after the drilling began) the total depth of 10,089 was reached and the #1 Spencer Trusts- API #24-069-2001 was completed.

The well required 47 feet of 24 inch diameter surface casing, 250 feet of 16 inch diameter casing, 2,037 feet of 10 ¾ inch casing and 8,041 feet of 7 5/8 inch casing. A total of 3,450 sacks of cement was used to cement in the casing strings. Of this casing, 7,760 feet of the 7 5/8-inch casing was recovered prior to the plugging of the well, which occurred on February 21, 1988.

A full copy of the log can be obtained from the Geological Survey and Resource Assessment Division, but it may be interesting to note the depth that some of the common Missouri formations were encountered in this well. All depth measurements were taken from a ground surface elevation of 250 feet above sea level. The Porters Creek Clay was found at a depth of 970 feet and extended to 1,490 feet. The McNairy Formation was encountered from 1,535 feet to 1,960 feet. The Jefferson City, Roubidoux and Gasconade formations were encountered from 1,960 feet to the base of the Gunter Sandstone Member at 5,445 feet below ground surface. The top of the Eminence Formation was reached at a depth of 5,445 feet. At 6,825 feet the Derby-Doe Run was encountered. The Bonneterre Formation was reached at a depth of 7,680 feet, and the top of the Lamotte Sandstone formation was reached at 9,938 feet.

Cores were taken from various depths and these, along with well cuttings were used to develop an assessment of oil possibilities and Cambrian (Eminence, Potosi, Derby-Doerun, Davis, Bonnterre and Lamotte formations) source potential. It was concluded that it was an "extremely high risk" to explore for hydrocarbons in this area. In other words, unlikely that oil would be discovered.

WELLHEAD PROTECTION SECTION PHONE NUMBER LISTING

(573)368-2165

BOB ARCHER - *Section Chief*
(573) 368-2165 - Information on legislation and enforcement and monitoring well construction.

EVAN KIFER - *Unit Chief*
Hydrogeologic Investigation Unit
(573) 368-2170 - Field investigation, variances, casing depths, shallow injection well (Class V) construction standards, and oil and gas well permitting.

SHERI FRY - *Unit Chief* - Administrative Unit
(573) 368-2115 Technical assistance in the area of regulations, well certification, and enforcement procedures.

SHARON BEISTEL
(573)368-2168 - Water well construction information and certification, heatpump registration, abandonment registration, location of wells, and map reading information.

VACANT - *Sheri Fry will be taking these calls until position is filled.* (573) 368-2115 - Permitting and testing information. Provides technical assistance in the area of regulations, well certification and enforcement procedures. Oil & Gas Council Secretary.

VACANT
(573) 368-2375 - General information, requests for forms, county maps, and publications.

JEANNIE HOYLE
(573) 368-2450 - Well Installation Board Secretary and information regarding Notices of Violation (NOVs).

PAUL MEYER
(573) 368-2159 - Water well reconstruction, well plugging, and field investigation.

KATHRYN (KAY) HARRIS
(573) 368-2165 - Section Secretary—General information, requests for forms, county maps, publications, invoicing and fee questions.

MATT PARKER
(573) 368-2195 - Oil and gas well permitting, oil and gas production statistics, shallow injection well (Class V) construction standards.

JOE SCHLUETER
(573) 368-2316 - Well plugging and field investigation.

CATHY SMITH
(573) 368-2167 - Casing depth information, variances, field investigation, and certification of monitoring wells.

PEGGY WENDT
(573) 368-2318 - Correspondence Clerk, information regarding pump information records submitted, and drought assistance well certification letters.

VACANT
(573) 368-2196 - Confined animal feeding operation wells, casing depth information, variances, field investigation, and certification of monitoring wells.

EDITOR'S NOTE

If you have any suggestions, ideas, or comments concerning this newsletter, please let us know.

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The Connection is published quarterly by the Department of Natural Resources Geological Survey and Resource Assessment Division

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MISSOURI DEPARTMENT OF NATURAL RESOURCES

GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

Celebrating 150 Years of Service

You're Invited To Our

OPEN HOUSE

The Geological Survey and Resource Assessment Division is celebrating 150 years of service to the citizens of the State of Missouri. The Missouri Department of Natural Resources is hosting an Open House at the Rolla office complex on Wednesday, October 15, 2003, from Noon to 6 p.m. Please join us in recognizing the many contributions the division has made to both the environmental and economic vitality of Missouri. Displays and demonstrations will highlight the early work of the Missouri Geological Survey and how the agency today provides an integral role in Missouri's future.

Please join us.

Stephen Mahfood
Department Director
Department of Natural Resources

Mimi R. Garstang
Division Director and State Geologist
Geological Survey and Resource Assessment Division

Wednesday, October 15, 2003
12 noon - 6 p.m.

RECOGNITION CEREMONY - 5 p.m.

* Comments
  - Director Mahfood
  - Director Garstang
* Unveiling of Sign
* James Hadley Williams Public Service Award

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Geological Survey and Resource Assessment Division
P.O. Box 250, Rolla MO 65402-0250

Exit 184 off Highway I-44 at Rolla, south on Kingshighway, left on Fairgrounds Road (second light), 2/10 mile on your left.

111 Fairgrounds Road, Rolla, MO 65401
(573) 368-2100

DECOMMISSIONING OLD WELLS

Each parcel of land has a unique history. It is common for properties to have had numerous owners throughout the years, as well, many changes. These changes may have included the construction of one or more water wells, later left abandoned. Such wells may have been constructed by drilling, auguring, jetting or even by digging a hole or excavation around a spring or seepage.

Out-of-service wells of any type may pose potential safety hazards or threats to ground water quality if not correctly maintained or decommissioned. Liability issues must also be considered. Imagine an old well on your property were proven to be a conduit for contaminants that reached neighboring ground water. The financial impact might be devastating.

The biggest problem is that old wells can be forgotten. Casings may deteriorate and rust. New owners or property developers may build over a well and unintentionally create a hazard. For example, wastes associated with stables, chicken houses or dumps, unknowingly located over an old, out-of-service well may flow straight into an aquifer. The consequences of such an oversight might be quite serious.

In an area where wells penetrate more than one water-bearing layer, contaminants may reach the groundwater from an old well and then travel on to other portions of the aquifer. If the contamination connects with another abandoned well, it could impact other aquifers and threaten operating wells and water supply sources.

Abandoned, hand dug wells do not typically lead to contamination risks for deep aquifers. However, their wide diameter, usually 3 to 5 feet, creates a significant physical safety hazard for construction equipment in addition to the danger it harbors for people and animals that may be injured falling into the well.

Our soundest advice to landowners is to locate any old or out-of-service wells and deal with the situation now. Here are a few suggestions for locating abandoned wells. Look for:

1) Pipes sticking out of the ground or out of holes.
2) Small buildings that may have been a well house
3) Depressions in the ground
4) The presence of concrete vaults or pits (perhaps covered by lumber or metal plates)
5) Out-of-use windmills (wind pumps) that may have been located near an old well

Other sources of information can be obtained from:

1) Old maps, plans and property title documents
2) Information from neighbors
3) Inspecting in, under and around old buildings after demolition.
4) Inspecting under porches and additions that may have been constructed over a well.
5) Water utility history: What was the source of water for your home before utility water was available?

Once a well is determined to have no current use or potential future use, it should be properly plugged. Your best resource would be a permitted contractor. They know proper well abandonment procedures. Additional assistance may be obtained by contacting the Wellhead Protection Section at (573) 368-2165.

When contacted, we can come to the location and assure that the most appropriate abandonment methods are identified and utilized. Prior to our arrival any pumps, pipes, related equipment or blockage should be removed from the well so that our camera can be used to determine well plugging requirements. After our inspection, we will provide a listing of materials necessary for proper abandonment.

It is important that all citizens of the state become aware of the potential danger of improperly abandoned wells. They can be a danger to our aquifers, wildlife, children and ourselves. Please call the Wellhead Protection Section for advice on these matters or find us on the Web at www.dnr.mo.gov/geology/geosrv/wellhead.htm

OUR PARTNERSHIP WITH YOU

Records are an essential element in Wellhead Protection Section's partnership with you. In an effort to better assist you, the Section now sends you a bimonthly report. This report allows you to quickly determine if you have missed sending in a record. This rapid response also assists in lowering penalty fees.

In order to assist us, when filling out the record, we need you to:

1) Provide the well owner's proper mailing address,
2) Provide the well owner's telephone number,
3) Provide the site address or location of the well, when different from the mailing address. (This is in addition to the legal description.)
4) Provide the well number or lot numbers when they are available,
5) Provide the total depth of the well, even if you are turning in a pump record,

(We use this information many times to make sure that we are making a proper match.)

6) Provide the well owner with the pink copy of the Water Well Certification and Pump Information Record.
7) Provide use of well (domestic, irrigation, etc.) and always identify which County the well is located in.
8) Copies of the Water Well Certification and Pump Information Record should be distributed as follows:

a) White Copy is sent to DNR's Wellhead Protection Section
b) Yellow Copy is for your records
c) Pink Copy is given to the well owner.

Your thorough attention to the above will assist us in promptly assisting you.

WELL INSTALLATION BOARD MEETING

The Department of Natural Resources next Well Installation Board Meeting will be November 7, 2003, 10:00 am, at the Discovery Center, 4750 Troost Avenue, Kansas City,

continued next page...

WIB Meeting *continued...*

Missouri. Portions of the meeting may be closed pursuant to Section 610.021 (1), (3), (7), (13), and (14), RSMo. (573-368-2450)

The February meeting is tentatively set for February 23, 2004 in conjunction with the annual Missouri Water Well Association convention at the Holiday Inn Sunspree at the Lake of the Ozarks.

FUTURE TESTING DATES

Well and Pump Contractor Test-

Please call the number below for a test application.

Dates:

October 22, 2003
November 19, 2003
December 10, 2003

Testing dates may be changed if necessary. If you have any questions concerning this schedule or testing, call (573) 368-2115.

WELCOME

All Pumps & Septics\Tony Summers, Carl Roberts
Black & Veatch\Amy Johnson, Leah MacNeill
Brewington Well Service\Bruce Brewington
Burge Irrigation\Glen Hollis
CH2M Hill\Clair Morris
Durbin Enterprises\Dominique Durbin
ECR Inc\Rickey Hendrix
George Matthews Drilling\Jeff Matthews
Grantham Drilling\Matthew Heob
MO Dept of Natural Resources\ Peggy Wendt
Norton Irrigation\David Norton
NPN Environmental \ Ruth Mannebach
Premier Environmental\Daniel Chamberlin
Schroeder Rotary Drilling\Jason Moellman, Scott Denker
SCI\Katie Dowell-Fusco
Shaw Environmental\Michael Kirby
Show-Me Environmental\Wes Knell
Smith & Co\Michael Walker, Larry Ormsby
Sunbelt Environmental\Lisa Cox
Wideman Well Drilling\Stevie Crawford
Wil-Co Drilling\Timothy Stokes

FAREWELL

Armor Shield of Illinois\Todd Hogan, Russell Goodiel
Brotcke Well & Pump\Doug Horne
Bud Bryant Pump Service\G H Bryant
CH2M Hill\Julie Mottin
Coffman\Thomas Coffman
Environmental Strategies Corp\ Tracy Cochrane
Foster Drilling\Jeff Stewart
French Implement Co\Donald French
Mexico Rotary Drilling\Donna Belcher
Mid-America Environmental\John Slayton
Midway Pump Service\Robert Moad
Midwest Environmental Consultants\ Christopher Snider
Nick O'Quinn Excavating\Nick O'Quinn
Ozark Drilling Co\Homer Chaffin
Sitex Environmental\Justin Rhyneer
The Water Boys\Daniel Crume
URS Corp\Brian Marick, Gene Papinako, Greg Powell, Thomas Adams
Wil-Co Drilling\John Jasper

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(573) 368-2100

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Please Circulate!

We look forward to seeing you at our Open House on Wednesday, October 15, 2003

Integrity and excellence in all we do

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